

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 June 2004 (03.06.2004)

PCT

(10) International Publication Number
WO 2004/047286 A1

(51) International Patent Classification⁷: **H03F 3/217, 3/38**

(21) International Application Number:
PCT/IB2003/006318

(22) International Filing Date:
14 November 2003 (14.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0203403-1 15 November 2002 (15.11.2002) SE

(71) Applicant (for all designated States except US): **BANG & OLUFSEN ICEPOWER A/S** [DK/DK]; Gl. Lundtoftevej 1B, Stuen, DK-2800 Lyngby (DK).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **FENGER, Lars, Michael** [DK/DK]; Stjernevangen 22, DK-2600 Glostrup (DK).

(74) Agent: **AWAPATENT AB**; Box 11394, SE-404 28 Göteborg (SE).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **PULSE MODULATED POWER CONVERTER**

(57) Abstract: A pulse modulation power converter comprising a forward path including a forward block (15), a switching stage (11) for amplifying an output from the forward block, and an output filter (12) for low pass filtering an output signal from the switching stage, a global feedback path (13), connected to the low pass filtered output signal, comprising a global feedback block (18, 19) for generating a feedback signal, and means (14) for subtracting said feedback signal from an input signal, and feeding the result to said forward path. The global feedback block and/or forward block includes means for compensating at least a portion of a phase lag of said output filter, and means for obtaining a 180 degrees phase lag at a switching frequency, thereby achieving conditions for a controlled oscillation at said switching frequency. The control system combines the advantages of the self-oscillation technology with a high gain, wide-band control loop for suppressing non-linearities. This will lead to a better performing system in terms of total harmonic distortion and noise.

WO 2004/047286 A1